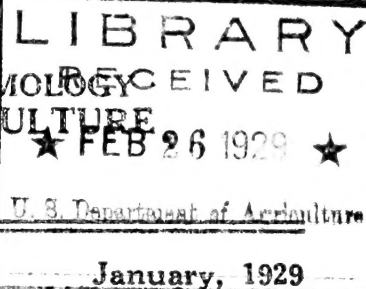


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MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
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HARRISON G. DYAR

Dr. H. G. Dyar died January 21 at Garfield Hospital. He fell at his desk two days previously as the result of a stroke of some kind. Doctor Dyar was born in New York City on February 14, 1866; was educated at the Roxbury Latin School, at the Massachusetts Institute of Technology, and at Columbia University. His master's and his doctor's degrees were from Columbia. He studied at Woods Hole in the summer of 1893. He worked at first with the Lepidoptera, and published an important paper on the classification of Lepidopterous larvae in 1894. He came to Washington in 1897 and was appointed custodian of the collection of Lepidoptera in the U. S. National Museum. He succeeded the late Dr. W. H. Ashmead as Assistant Curator of the Division of Insects of the Museum. Afterwards he became connected with the Bureau of Entomology, but in his later years he worked at the U. S. National Museum as a free lance, devoting most of his attention to mosquitoes. His standing as a culicidologist was of the very highest, and he was also among the foremost lepidopterists. His death is a great loss to Washington entomological circles.--L. O. H.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. H. Larrimer, in Charge

The following members of the Division attended the scientific meetings held in New York December 27 to January 2: W. H. Larrimer, J. S. Wade, J. R. Horton, F. W. Poos, D. J. Caffrey, C. H. Batchelder, M. E. Ryberg, L. H. Patch, C. M. Packard, W. J. Phillips, Morris Schlosberg, S. M. Dohanian and A. F. Satterthwait.

Dr. H. L. Parker sailed on January 5 for Hyères, Var, France, where he will continue to work on parasites of the European Corn Borer.

L. H. Patch, of the field laboratory at Sandusky, Ohio, was in Washington on January 12 for consultation regarding activities against the corn borer.

A. I. Balzer was transferred January 1 from work on the corn borer at Monroe, Mich., to take charge of a new field laboratory at Beaumont, Tex., where the main project is the study of the sugar cane moth borer as a pest of corn.

Merrill M. Darley, who for several months has been employed in the work on the alfalfa weevil at Salt Lake City, entered the Graduate School of Ohio State University at the beginning of the winter quarter.

John S. Pinckney, who was formerly connected with the field laboratory at Wichita, Kans., has recently been reappointed in this Division for duty at Carlisle, Pa.

C. M. Packard, J. R. Horton, C. C. Hill, E. D. Eaton, and A. F. Satterthwait were in Washington the first week of January for consultation on various regional problems, including that of the Hessian fly.

Conference on Corn-Borer Research

A complete program of research for controlling the European corn borer was presented and adopted at the third annual conference of corn-borer interests in Washington, D. C., January 2. The meeting was attended by more than 70 representatives from the Corn Belt and the States infested by the corn borer, including entomologists, administrative officials, and others interested in the problem.

Dr. A. F. Woods, Director of Scientific Work, United States Department of Agriculture, acted as chairman of the conference and opened the day's session with a brief address, in which he urged a free discussion of the many angles of the problem and explained that the purpose of the conference was to provide for a complete coordination of the various projects involving research on the corn borer throughout the affected States and Canada.

The program as adopted for 1929 includes definite research work by six bureaus of the United States Department of Agriculture--Entomology, Plant Industry, Chemistry and Soils, Public Roads, Animal Industry, and Agricultural Economics. Seven States--Illinois, Indiana, Michigan, Ohio, New Hampshire, Pennsylvania, and New York--will also carry on research and educational work in the numerous phases of the problem. A limited number of copies of this program are available for general distribution.

FOREST-INSECT INVESTIGATIONS

F. C. Craighead, in Charge

On January 2 were terminated the appointments of N. T. Mirov and G. R. Struble, field assistants, who assisted H. L. Person during the 1928 field season on special studies of the western pine beetle on the Modoc National forest. Mr. Struble has registered for graduate study in forestry and entomology at the University of California. Mr. Mirov will carry on some special chemical work for the office of White Pine Blister Rust Control, located at Berkeley, Calif.

In December, 1928, at a small mill in southern Oregon, J. E. Patterson obtained records from a study of the amount of lumber salvaged from insect-killed western yellow pine.

I. J. Hastings has been appointed Agent, to take effect January 2, 1929. During the last season Mr. Hastings assisted F. P. Keen as field assistant in barkbeetle surveys on the Modoc National Forest, and will continue work on this project.

DECIDUOUS-FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, in Charge

Howard Baker, who has been associated with Dr. Paul M. Gilmer in work on the codling moth in Kansas, was transferred early in January to Shreveport, La., where he will be in immediate charge of a newly established field laboratory for investigations of pecan insects. This laboratory will be a branch of the one at Albany, Ga.

C. B. Nickles, who has been associated with Dr. F. H. Lathrop in investigations of the blueberry maggot at Cherryfield, Me., was transferred early in January to Brownwood, Tex., where he will be in immediate charge of pecan-insect investigations there and in the vicinity. H. S. Adair, who has been in charge of the pecan-insect field laboratory at Brownwood, was transferred January 16 to Albany, Ga., where he will be associated with G. E. Mozzette in investigations of pecan insects.

E. J. Newcomer, of the Yakima, Wash., field laboratory, presided at the conference of the Western Cooperative Oil Spray Project, at Spokane, Wash., December 28 and 29, 1928.

On January 17 Oliver I. Snapp addressed the Tennessee State Horticultural Society, at Nashville, on the results of recent investigations for the control of peach insects.

Conferences on the codling moth and peach moth were held in Washington, D. C. January 3, at the Bureau of Entomology. Below are listed the names of those present and the institutions and concerns represented:

Connecticut Agricultural Experiment Station, Philip Garman.
Delaware Agricultural Experiment Station, H. L. Dozier.
Georgia State Board of Entomology, C. H. Alden.
Georgia State Entomologist, M. S. Yeomans.
Illinois University, W. P. Flint.
(Indiana) Purdue University, J. J. Davis.
Kansas Agricultural College, L. E. Call and George A. Dean.
Maryland University, E. N. Cory, C. Graham, W. T. Henerey, and H. S. McConnell.
Michigan Agricultural College, R. H. Pettit.
New Jersey Agricultural Experiment Station, Byrley F. Driggers.
New York Agricultural Experiment Station, P. J. Parrott.
Ohio Agricultural Experiment Station, J. S. Houser and Louis A. Stearns.
Ohio State University, M. P. Jones.
Ontario Agricultural College, W. A. Ross.
Oregon Agricultural College, R. H. Robinson.
Pennsylvania Agricultural Experiment Station, H. E. Hodgkiss and H. N. Worthley.
Pennsylvania Department of Agriculture, T. L. Guyton.
Virginia Agricultural Experiment Station, W. S. Hough.
California Spray Chemical Company, W. S. Regan.
Standard Oil Company, J. A. Landes.
Tobacco By-Products & Chemical Corporation, R. B. Arnold and M. D. Leonard.

U. S. Department of Agriculture:

Bureau of Chemistry and Soils, R. C. Roark.
Bureau of Entomology, A. J. Ackerman, Luther Brown, Paul M. Gilmer, G. J. Haeussler, J. A. Hyslop, F. H. Lathrop, J. W. Lipp, L. C. McAlister, jr., N. E. McIndoo, B. A. Porter, A. L. Quaintance (Chairman), R. F. Sazama, E. H. Siegler, Loren B. Smith, and E. R. Van Leeuwen.
Bureau of Plant Industry, M. B. Waite.

Minutes of the conference will be issued in mimeographed form and sent to those in attendance. Upon request copies of the minutes will also be sent, as long as the supply lasts, to others interested.

Contributions from the Japanese-Beetle Laboratory

Dr. Raymond C. Osburn, head of the Department of Zoology and Entomology of Ohio State University, Columbus, Ohio, visited the Laboratory on January 1. Dr. Osburn spent some time in looking over the various branches of the work and their equipment.

On January 19 Prof. Arno Viehaever, head of the Department of Biology and Pharmacognosy at the Philadelphia College of Pharmacy and Science, and Dr. N. A. Sankowsky, Research Chemist of the Standard Oil Company, N. Y., visited the Laboratory. They were very much interested in the various branches of the work.

J. L. King gave one of the Ludwick Lecture Series at the Academy of Natural Sciences of Philadelphia on January 21. His subject was "The Control of Insects With Insects, and Its Application in the Philadelphia Area."

INSECTS AFFECTING MAN AND ANIMALS

F. C. Bishopp, in Charge

F. C. Bishopp attended the meeting of the newly organized Reindeer Committee held in the office of the Commissioner of Education on January 9. Other members of the Committee from the Department of Agriculture who were present were Dr. J. R. Mohler, Chief, Bureau of Animal Industry, and Dr. Paul G. Redington, Chief, Bureau of Biological Survey. Representing the Department of the Interior on the Committee were William Spry, Commissioner, General Land Office, A. E. Demaray, National Park Service, L. A. Kalbach, Acting Commissioner, Bureau of Education, and Otto F. Ohlson, General Manager, The Alaska Railroad. The meeting was called for the purpose of discussing ways and means of aiding the growing reindeer industry in Alaska. Interest was shown in the subject of reindeer bots, which are prevalent in Alaska and do considerable damage, especially to reindeer hides.

R. W. Wells returned to his station at Beltsville, Md., January 7, after several weeks spent in work on the cattle grub near Dallas and Fort Worth, Tex.

C. D. Huyler, formerly head of the Huyler Candy Company, visited the Washington office January 7 to consult in regard to the control of wood ticks on his estate, which consists of two islands off the coast of South Carolina.

E. L. Filby, sanitary engineer for the State Board of Health of Florida, was in conference with F. C. Bishopp in Washington on January 26, regarding research work on mosquitoes in Florida.

On January 15 Mr. Bishopp made a trip to Burkes Garden, Va., to make observations on conditions there as to the cattle grub.

TROPICAL, SUBTROPICAL, AND ORNAMENTAL PLANT INSECT INVESTIGATIONS

A. C. Baker, in Charge

Dr. C. I. Bliss, in charge of the Division's field laboratories in New Orleans and Mexico City, has been in Washington since January 3, reviewing work and plans. His principal effort during this time has been given to the handbook on experimental analysis under preparation in the Division. The first section ready for publication will deal with the analysis of field experiments on control of the codling moth. This pest has been chosen as a representative of those insects the mortality of which, as a result of control work, can not be ascertained directly; it must be gauged from the influence of the insect on the crops rather than from an actual count of living and dead individuals. Dr. Bliss's stay in Washington has grown out of the necessity of examining data kindly placed at our disposal by Dr. A. L. Quaintance, of the Division of Deciduous-Fruit Insects, and the benefits from consultation with investigators of the codling moth then in Washington. It is expected that the manuscript will be offered for publication in February.

A. W. Cressman and Miss Bessie M. Broadbent, of the field laboratory at New Orleans, stopped in Washington for conference on their return trip from the scientific meetings in New York at holiday time.

Dr. C. A. Weigel delivered an address on "Insect Enemies of Carnations" before the American Carnation Society at its annual convention, held on January 30 and 31, at Lancaster, Pa.

A New Field Laboratory

On January 2, 1929, the investigations on insects attacking ornamentals, especially bulbs, in the Northwest, were transferred from their former location at the Western Washington Experiment Station, at Puyallup, to the new field laboratory of the Division at Sumner, Wash. The relations with the Experiment Station have been most cordial, and it is only by reason of necessity that the change has been made. The Experiment Station, already cramped for room, could provide only one small office, entirely inadequate to the work.

The new field laboratory is located on the grounds of the Pierce County Farm, near Sumner, and the buildings, erected for our use by the county, were made possible through the efforts of the growers in the Northwest. The laboratory plant consists of a group of buildings comprising the main laboratory, shop and storage shed, greenhouse, and insectary. The main building contains two offices, a biological laboratory, 32 by 12 feet in size, a chemical laboratory, a general laboratory room, a dark room, and a cold room. There is also a large space for storage in the unfinished upper half story. A greenhouse 26 by 80 feet is divided into two sections, with approximately 600 square feet of bench space each. The shop building, 12 by 40 feet, is divided into two parts, one to be used for shop purposes, and the other as a storage shed for bulbs or otherwise as desired. The insectary is 12 by 20 feet in size. Approximately an acre of ground is available for field tests.

Sumner is about 30 miles south of Seattle, and 10 miles southeast of Tacoma. The location is quite representative of climatic conditions which prevail throughout western Washington and western Oregon, sections in which the different branches of the industries interested are most highly developed. The county farm is located a little over a mile from the center of Sumner, off the Orting Road. C. F. Doucette, whose work on bulbs and floral crops has caused very favorable comment, is in charge of the laboratory, and the interest stimulated by his work has had no small share in making the new laboratory possible. The postoffice address is Box 566, Sumner, Wash.

TAXONOMIC INVESTIGATIONS

Harold Morrison, in Charge

Professors E. O. Essig and H. B. Herms, of the Department of Entomology, University of California, at Berkeley, visited the taxonomic unit on January 1.

Dr. H. L. Dozier, State Entomologist of Delaware, called on January 4 to discuss with A. B. Gahan some problems dealing with parasitic Hymenoptera.

J. S. Houser, chief of the Division of Entomology, and H. L. Gui, Assistant Entomologist, of the Ohio Agricultural Experiment Station, consulted A. B. Gahan and some of the other workers in the taxonomic unit early in January.

On January 7 and 8 A. F. Satterthwait, of Webster Groves, Mo., completed the consultations which he began early in December with the Bureau specialists in the Museum.

Dr. H. W. Allen, of the Japanese Beetle Laboratory, Moorestown, N. J., spent January 9 to 18 in the Museum perfecting manuscript which deals with the species of *Tiphia* occurring in eastern Asia. Records from material in the National Collection not previously studied by him were incorporated in the paper at this time.

Frank Johnson, of New York City, came to Washington on January 25 to consult with Dr. Schaus and to deposit in the Museum collection a gift of some rare species of Lepidoptera.

Dr. J. G. Needham, of Cornell University, spent January 23 to 29 in the Division of Insects, working on the Chinese dragonflies in the Museum collections. With the assistance of R. P. Currie he was able to go over all of the Chinese material that had been accumulated by the Museum. He took away with him for further study several hundred specimens.

BEE CULTURE INVESTIGATIONS

Jas. I. Hambleton, in Charge

W. J. Nolan and Dr. C. E. Burnside attended the annual meeting of the Maryland State Beekeepers' Association, held at Baltimore on January 9, where Mr. Nolan discussed "Methods of Handling Package Bees," and Doctor Burnside discussed "Sterilization of Infected Combs by Formaldehyde," and "The Occurrence of Melezitose in Honey." Dr. H. E. Barnard, president of the American Honey Institute, was also present and gave an exceedingly interesting talk.

Dr. C. E. Burnside attended the meeting of the Piedmont Beekeepers' Association, at Lynchburg, Va., on January 22, and spoke on "Causes and Treatment of the Brood Diseases of Bees."

Miss Claribel R. Barnett, librarian of the Department of Agriculture, and Miss Mabel Colcord, librarian of the Bureau of Entomology, visited the Bee Culture Laboratory on January 24. The laboratory houses all the literature of the Department pertaining to bees and honey, and both Miss Barnett and Miss Colcord were very much interested in plans for the further development of this collection. It is one of the leading beekeeping libraries in the country.

Mr. Yasuo Baron Goto, assistant county agent, Honolulu, Hawaii, visited the Bee Culture Laboratory on January 25. Besides his duties as county agent, Mr. Goto, in partnership with his father, owns and manages one of the largest apiaries in Hawaii. Mr. Goto made it a particular point to learn as much as possible about the identification of American foulbrood, as several cases of this disease have been detected on the Islands during the past year. Mr. Goto will make a special effort to locate all sources of disease on his return to Hawaii.

E. L. Sechrist returned to the Laboratory on January 26, after an extended trip through the Intermountain States, where he was engaged in a study relating to the cost of honey production and systems of apiary management. This study was carried on cooperatively by the Bureau of Entomology. A number of beekeepers have been assisting in this work, by taking certain desired data.

Dr. A. P. Sturtevant, of the Intermountain Bee Culture Field Station, Laramie, Wyo., attended the annual meeting of the Utah State Beekeepers' Association held on January 8 and 9, at Ogden. Doctor Sturtevant reports that the meeting was well attended. Much interest was manifested in the activities of the Mountain States Honey Producers' Association, as discussed by A. W. B. Kjosness, manager, and also in the various phases of the work of the Intermountain Bee Culture Field Station. The Utah State Beekeepers' Association went on record as favoring the passage at the present sitting of the legislature of the law under consideration prohibiting the importation into the State of bees on combs or used equipment. The Superior Honey Company held open house at their plant one day, serving lunch to all the beekeepers.

Geo. H. Rea, of Reynoldsville, Pa., and Herbert D. Smith, of Washington, D. C. were visitors at the Laboratory in January.

Kenneth Hawkins, of the G. B. Lewis Co., Watertown, Wis., visited the Intermountain Bee Culture Field Station on January 3, while on his way to Denver and points farther south.

TRUCK-CROP INSECT INVESTIGATIONS

J. E. Graf, in Charge

O. E. Gahm, formerly assigned to the Mexican bean beetle laboratory at Columbus, Ohio, has been transferred to Arlington, Va., effective Jan. 1, where he will undertake an investigation of mushroom pests, in cooperation with the Bureau of Plant Industry and the Pennsylvania State Agricultural College.

Joe Milam, who was temporarily transferred to the Plant Quarantine and Control Administration, for work on the pink bollworm in the Southwest, returned to the Bureau on January 1, and is now assigned to the field laboratory at Tempe, Ariz.

The Mexican bean beetle laboratory, which was established at Birmingham, Ala., early in 1921, when the first outbreak of the beetle was discovered in the Southeast, has been closed. L. W. Brannon, who has been in charge of this laboratory, has been transferred to Norfolk, Va., where a new sublaboratory will be established, effective January 1, in cooperation with the Virginia Truck Experiment Station there.

On January 8 W. H. White, of Washington, D. C., and O. E. Gahm, of Arlington, Va., visited Kennett Square, Pa., to confer with C. A. Thomas, who represents the Pennsylvania State College in the cooperative investigation of mushroom pests.

About the middle of January Walter Carter returned from Washington to the field laboratory at Twin Falls, Idaho. En route he stopped at Madison, Wis., where he conferred with Prof. H. F. Wilson, J. E. Dudley, Jr., and others. At St. Paul, Minn., he conferred with Prof. R. N. Chapman and others.

N. F. Howard, of Columbus, Ohio, attended the convention of the National Cannery Association, held at Chicago, Ill., January 22 and 23, where he discussed the problem of the Mexican bean beetle.

J. L. Tate has been given an appointment as field assistant at the field laboratory at Gulfport, Miss., for work on the vegetable weevil, under the direction of M. M. High.

COTTON INSECT INVESTIGATIONS

B. R. Coad, in Charge

Manuel Alcazar, Inspector de Plagas, Arduana, Juarez, Mexico, F. A. Fenton, El Paso, Tex., T. P. Cassidy, Tucson, Ariz., and R. E. McDonald, State Entomologist, Austin, Tex., spent several days at Tallulah early in January in conference with B. R. Coad regarding work on the pink bollworm in the Southwest and in Mexico.

S. H. McCrory, Chief of the Division of Agricultural Engineering, Bureau of Public Roads, spent January 5 at Tallulah in conference with B. R. Coad about cooperative projects on control of the pink bollworm in the Southwest.

Dr. W. E. Hinds, Extension Entomologist, Baton Rouge, La., spent January 22 at Tallulah in conference with B. R. Coad.

U. C. Loftin, of the Tlahualilo Company of Tlahualilo, Durango, Mexico, was a visitor at Tallulah January 23 and 24. Mr. Loftin was greatly interested in the work of the field laboratory there, and especially in the prospects for eradication and control of the pink bollworm in Mexico and the United States.

V. V. Williams, Assistant Entomologist, engaged for the past two years in investigation of the *Bucculatrix* in the vicinity of Calexico, Calif., resigned on January 31 to engage in commercial cotton growing in Arizona.

W. G. Clark, Assistant Chemist in the field laboratory at Tallulah, has resigned, effective January 31.

C. S. Rude, Extension Entomologist, Oklahoma State College of Agriculture, was a visitor at Tallulah on January 18, for conference with Mr. Coad on cooperative work in Oklahoma.

INSECT PEST SURVEY

J. A. Hyslop, in Charge

Dr. F. M. Wadley has accepted an appointment with the Insect Pest Survey, effective January 1, 1929. Dr. Wadley is a recent graduate of the University of Minnesota, and will devote part of his time to statistical work in connection with the records of the Insect Pest Survey.

J. A. Hyslop and Dr. Wadley attended the annual meeting of the American Association for the Advancement of Science, held in New York City in and after holiday week.

Immediately after the recent scientific meetings in New York Prof. D. M. DeLong, of Ohio State University, visited the Insect Pest Survey, to clear up certain matters relative to the common names being used for certain jassids.

LIBRARY

Mabel Colcord, Librarian

NEW BOOKS

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. . . Cigarrinha nociva a varias especies vegetaes. Biologia de membracideo *Aethalion reticulatum* (L.). 27 [4] p., 3 pl. Rio de Janeiro, 1928. Ministerio de Agricultura, Industria e Commercio. Instituto Biologico de Defesa Agricola. Boletim No. 6.)

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Pheretina (the common Indian earthworm) . . . 72 p., illus. Lucknow, May, 1926. (Indian Zool. Mem. On Indian animal types, ed. by K. N. Bahl, I.)

Blunck, Hans, Bremer, H., and Kaufmann, O.

Untersuchungen zur Lebensgeschichte und Bekämpfung der Rübenfliege (*Pegomya hyoscyami* Pz.). Arbeiten aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Bd. 16, Hft. 3, p. 423-573, Oct. 1928.

British Museum (Natural History).

The house-fly. Its life-history, importance as a disease carrier, and practical measures for suppression. 71 p., illus. London, British Museum, 1928. (Economic Series No. 1 A.)

Earle, F. S.

Sugar cane and its culture. 355 p., illus. New York, John Wiley & Sons, Inc., 1928. (Insects and other pests of sugar cane, p. 162-188, including bibliography of sugar-cane insects, p. 187-188.)

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Die Bienenzucht . . . 3. Aufl. . . . von Alois Alfonsus. 232 p. incl. plate, port. Freiburg in Br., Fischer, 1922. (Added title-page: Bücherei für Bienenkunde, hrsg. von Ludwig Armbruster, Bd. VI.)

Faune de France 19. Berland, L. Hyménoptères vespiformes II. Eumenidae, Vespidae, Masaridae, Bethyilidae, Dryinidae, Embalemidae. 208 p., illus. Paris, Lechevalier, 1928. (Index bibliographique, p. 185-198.)

Faune des colonies françaises. Pub. sous la direction de A. Gruvel. t. 2, fasc. 2-4. Paris, Soc. d'Ed. Geog., Maritimes et Coloniales, 1928. fasc. 2, Arrow, Gilbert. J. Coléoptères erotylides et endomychides de l'Indo-Chine française, p. 329-357, illus.; fasc. 3. Bertrand, H. Description sommaire de quelques larves de dytiscides de Madagascar, p. 361-386, illus.; fasc. 4. Hustache, A. Curculionides nouveaux de la faune guinéenne et soudanese, p. 389-447, illus.

Ferris, G. F.

The principles of systematic entomology. 169 p. Stanford University, Calif., Univ. Press, 1928. (Stanford Univ. Pubs., Biol. Ser., v. 5, No. 3.)

Fisher, W. S.

A revision of the North American species of buprestid beetles belonging to the genus *Agrilus*. 347 p., 11 pl. Washington, Government Printing office, 1928. (U. S. National Museum Bul. 145.)

Kusnezov, N. J.

The cedar bombyx (*Dendrolimus sibiricus* Tshtv.) in the forests of the Buriat-Mongol Republic. (Biology, damage, control.) 62 p., illus. Leningrad, 1928. (At head of title: People's Commissariat of Agriculture of the Buriat-Mongol Republic Station of Plant Protection.)

Lindner, Erwin.

Die Fliegen der palaearktischen Region. Lfg. 29-30, illus. Stuttgart, Schweizerbart'sche Verlagsbuchhandlung, 1928. Lfg. 29. 24. Asilidae, p. 193-256; lfg. 30. 31. Syrphidae, p. 1-48, 1 pl.

Marelli, C. A.

. . . Estudio sobre una peste de los eucaliptos [*Goniopterus scutellatus* Gyll.] descubierta en la Argentina. 138 p., illus., 10 pl. La Plata, Taller de impresiones oficinales, 1928. (Mem. del Jardin Zoologico de La Plata [Rep. Argentina] v. 3, p. 51-183, pl. XIX-XX III.)

Martin, Hubert.

The scientific principles of plant protection, with a foreword by Sir Daniel Hall. 316 p. London, Edward Arnold & Co., 1928. (Short lists of references interspersed.)

Newton, H. C. F.

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Pictet, Arnold.

Les conditions du déterminisme des proportions numériques entre les composants d'une population polymorphe de lépidoptères. Rev. Suisse de Zool. v. 35, fasc. 4 (Nos. 21 et 22), p. 473-505, fold. pl. 4, Dec. 1928. (Index bibliographique, p. 503-504.)

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The biology of spiders. 376 p., illus. London, Sidgwick & Jackson, 1928. (Bibliography, p. 349-369.)

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Zoological Record v. 64 . . . 1927, ed. by W. L. Sclater. London, Published for the Zoological Society, 1928.

